

REMARKS

In the Office Action, the Examiner rejected claim 1 for containing ambiguous terms. The Examiner rejected claims 1-15 under § 102 as being anticipated by USP 6,407,434 issued to Rostoker et al. (Rostoker). In this Amendment, Applicants have amended claims 1, 2, 4, 5, 8, and 12. No claims have been deleted or added. Accordingly, claims 1-15 will be pending after entry of this Amendment.

I. Informalities

In this Amendment, Applicants have amended claims 5 and 12 to correct certain informalities in these claims.

II. Ambiguous Terms

The Examiner rejected claim 1 because the terms “set of potential sub-regions” were ambiguous. Applicants have removed the term “potential” from the claim. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the objection to the claims for the use of the term “potential.”

III. Claims 1-7

The Examiner rejected claims 1-7 under § 102 as being anticipated by Rostoker.

Claims 2-7 are dependent directly or indirectly on independent claim 1. Claim 1 recites a method of pre-computing costs of placing circuit modules in regions of circuit layouts. This method defines a set of partitioning lines for partitioning the region into a plurality of sub-regions

during a placement operation. For each set of sub-regions, the method then identifies a connection graph that traverses the set of sub-regions, where some of the connection graphs have edges that are at least partially diagonal. The method identifies an attribute of each identified connection graph. For each set of sub-regions, the method then stores the attribute of the connection graph identified for the set. The stored attribute is for use during a placement operation to compute costs of placing circuit modules in regions of circuit layouts.

Applicants respectfully submit that Rostoker does not disclose teach, or even suggest such a method. Specifically, Applicants respectfully submit that Rostoker does not disclose a method that:

- for a set of sub-regions, identifies a connection graph that connects the set of sub-regions, wherein the connection graph has at least one edge that is at least partially diagonal;
- for each set of sub-regions, identifies a connection graph that traverses the set of sub-regions, wherein some of the connection graphs have edges that are at least partially diagonal;
- identifies an attribute of each identified connection graph; and
- for each set of sub-regions, stores the attribute of the connection graph identified for the set, where the attribute is for use during a placement operation to compute costs of placing circuit modules in regions of circuit layouts.

The Examiner identifies column 59, lines 44-60 of Rostoker as disclosing the storing element of claim 1. However, as characterized by the Examiner, this passage of Rostoker

discloses a “routing graph connection storage” implemented during a routing operation. This routing operation as disclosed in Rostoker transpires after a placement operation. Therefore, Rostoker does not disclose, teach or even suggest the recited method of claim 1, which pre-computes costs of placing circuit modules in regions of circuit layouts. To add further force and reasoning to this argument, Applicants have amended claim 1 to recite that the stored attribute is for use during a placement operation to compute costs of placing circuit modules in regions of circuit layouts.

Accordingly, Applicants respectfully submit that Rostoker does not render claim 1 unpatentable. As claims 2-7 are dependent on claim 1, Applicants respectfully submit that claims 2-7 are patentable over Rostoker for at least the same reasons. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the § 102 rejection of claims 1-7.

IV. Claims 8-15

The Examiner rejected claims 8-15 under § 102 as being anticipated by Rostoker.

Claims 9-15 are dependent directly or indirectly on independent claim 8. Claim 8 recites a method of computing placement costs for a placer that partitions a region of a circuit layout into a plurality of sub-regions. This method identifies, for a set of sub-regions, a connection graph that connects the set of sub-regions, where the connection graph has at least one edge that is at least partially diagonal. The method identifies a placement cost from an attribute of the connection graph. The method then stores the placement cost for the set of sub-regions. The placement cost is for use during a placement operation to compute costs of placing circuit

modules in regions of circuit layouts.

Applicants respectfully submit that Rostoker does not disclose teach, or even suggest such a method. Specifically, Applicants respectfully submit that Rostoker does not disclose a method that:

- defines a set of partitioning lines for partitioning the region into a plurality of sub-regions during a placement operation;
- identifies a placement cost from an attribute of the connection graph;
- identifies an attribute of each identified connection graph; and
- stores the placement cost for the set of sub-regions, where the placement cost is for use during a placement operation to compute costs of placing circuit modules in regions of circuit layouts.

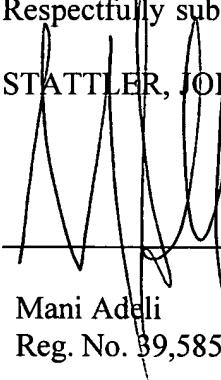
The Examiner identifies column 59, lines 44-60 of Rostoker as disclosing the storing element of claim 8. However, as characterized by the Examiner, this passage of Rostoker discloses a “routing graph connection storage” implemented during a routing operation. This routing operation as disclosed in Rostoker transpires after a placement operation. Therefore, Rostoker does not disclose, teach or even suggest the recited method of claim 8, which computes placement costs for a placer that partitions a region of a circuit layout into a plurality of sub-regions. To add further force and reasoning to this argument, Applicants have amended claim 8 to recite that the stored placement cost is for use during a placement operation to compute costs of placing circuit modules in regions of circuit layouts.

Accordingly, Applicants respectfully submit that Rostoker does not render claim 8 unpatentable. As claims 9-15 are dependent on claim 8, Applicants respectfully submit that claims 9-15 are patentable over Rostoker for at least the same reasons. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the § 102 rejection of claims 8-15.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 1-15, are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,
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